CLAIMS

We claim:

1. A composition for enhancing contrast of one or more areas of a subject for X-ray imaging when administered to a subject, comprising:

sterically stabilized liposomes containing or associated with one or more nonradioactive contrast-enhancing agents.

2. The composition of claim 1, where the X-ray imaging is computed tomography.

3. The composition of claim 1, where the contrast-enhancing agents are iodinated ionic or iodinated nonionic compounds.

4. The composition of claim 3, where a suspension of the sterically stabilized liposomes has a concentration of at least 30 milligrams of iodine per milliliter of the suspension.

5. The composition of claim 1, where an average diameter of the liposomes in the composition is less than about 150 nanometers.

6. The composition of claim 1, where an average diameter of the liposomes in the composition is less than about 120 nanometers.

7. The composition of claim 1, where the composition is capable of being administered to the bloodstream of the subject.

8. The composition of claim 7, where the composition provides an enhanced contrast that remains detectable at least 30 minutes after administration.

9. The composition of claim 7, where the composition provides an enhanced contrast in at least part of a vasculature or an organ of a subject that is increased by at least 50 Hounsfield units.

10. The composition of claim 1, where the sterically stabilized liposomes are PEGylated liposomes.

11. The composition of claim 1, where the sterically stabilized liposomes are targeted liposomes.

12. A composition for use in computed tomography of a subject, comprising:

one or more iodinated nonradioactive contrast-enhancing agents contained within or associated with PEGylated liposomes, where intravenous administration of an amount of the composition to the subject provides enhanced contrast of at least 50 Hounsfield units in at least part of a vasculature or an organ of the subject at least 30 minutes after administration.

13. The composition of claim 12, where a milliliter of the composition contains at least 30 milligrams of iodine.

14. A pharmaceutical composition, comprising one or more compositions of claim 1, wherein the pharmaceutical composition is in a form that is capable of being injected intravenously into a subject.

15. A method comprising:

selecting one or more nonradioactive contrast-enhancing agents; and

forming sterically stabilized liposomes in the presence of the nonradioactive contrast-enhancing agents to provide liposomes containing or associated with one or more contrast-enhancing agents.

16. The method of claim 15, where one milliliter of a suspension of the sterically stabilized liposomes has at least 30 milligrams of iodine.

17. The method of claim 15, where an average diameter of the sterically stabilized liposomes is less than about 120 nanometers.

18. The method of claim 15, where liposomes are formed in the presence of one or more contrast-enhancing agents using a method selected from a group consisting of hydration of dried lipids in the presence of one or more contrast-enhancing agents, mixing a volatile organic solution of lipids with an aqueous solution of one or more contrast-enhancing agents causing evaporation of the organic solution, and dialysis of an aqueous solution of lipids and

detergents and/or surfactants to remove the detergents and/or surfactants and form liposomes in the presence of one or more contrast-enhancing agents.

19. A method comprising:

forming sterically stabilized liposomes; and

drawing one or more nonradioactive contrast-enhancing agents into the liposomes to provide liposomes containing or associated with one or more contrast-enhancing agents.

20. The method of claim 19, where one milliliter of a suspension of the sterically stabilized liposomes has at least 30 milligrams of iodine.

21. The method of claim 19, where an average diameter of the sterically stabilized liposomes is less than about 120 nanometers.

22. A method of imaging a subject, the method comprising:

introducing a composition of sterically stabilized liposomes containing or associated with one or more nonradioactive contrast-enhancing agents into the bloodstream of a subject; and

generating images of a region of interest in the subject where the contrast-enhancing agents cause a contrast enhancement in the region of interest by at least 50 Hounsfield units for a duration of longer than 5 minutes.

23. The method of claim 22, where the generating includes acquiring one or more images by computed tomography.

24. The method of claim 23, where the images are used for one or more of detection, quantification, characterization, classification or monitoring, of ischemia, myocardial microcirculatory insufficiencies, tumors, cancers, healing and inflammation.